



SEQUENCE LISTING

<110> STEINMAN, RALPH A.
NUSSENZWEIG, MICHEL C.
SWIGGARD, WILLIAM J.
JIANG, WANPING

<120> IDENTIFICATION OF DEC, A RECEPTOR WITH
C-TYPE LECTIN DOMAINS, NUCLEIC ACIDS
ENCODING DEC, AND USES THEREOF

<130> RUJ-001CNRCE2

<140> 09/586,704

<141> 2000-06-05

<150> 08/381,528

<151> 1995-01-31

<160> 13

<170> PatentIn version 3.5

<210> 1

<211> 30

<212> PRT

<213> Homo sapiens

<220>

<223> C terminal DEC-205

<400> 1

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | His | Arg | Leu | His | Leu | Ala | Gly | Phe | Ser | Ser | Val | Arg | Tyr | Ala | Gln |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

Gly Val Asn Glu Asp Glu Ile Met Leu Pro Ser Phe His Asp

| | | | | | | | | | | | | | | | |
|--|--|--|----|--|--|--|--|----|--|--|--|--|--|----|--|
| | | | | | | | | | | | | | | | |
| | | | 20 | | | | | 25 | | | | | | 30 | |

<210> 2

<211> 25

<212> PRT

<213> Mus musculus

<220>

<223> N terminal DEC-205

<400> 2

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Glu | Ser | Ser | Gly | Asn | Asp | Pro | Phe | Thr | Ile | Val | His | Glu | Asn | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

Gly Lys Cys Ile Gln Pro Leu Phe Asp

| | | | | | | | | | | | | | | | |
|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | |
| | | | 20 | | | | | | 25 | | | | | | |

<210> 3
 <211> 1723
 <212> PRT
 <213> Mus musculus

<220>
 <223> Predicted DEC-205

<400> 3
 Met Arg Thr Gly Arg Val Thr Pro Gly Leu Ala Ala Gly Leu Leu Leu
 1 5 10 15
 Leu Leu Leu Arg Ser Phe Gly Leu Val Glu Pro Ser Glu Ser Ser Gly
 20 25 30
 Asn Asp Pro Phe Thr Ile Val His Glu Asn Thr Gly Lys Cys Ile Gln
 35 40 45
 Pro Leu Ser Asp Trp Val Val Ala Gln Asp Cys Ser Gly Thr Asn Asn
 50 55 60
 Met Leu Trp Lys Trp Val Ser Gln His Arg Leu Phe His Leu Glu Ser
 65 70 75 80
 Gln Lys Cys Leu Gly Leu Asp Ile Thr Lys Ala Thr Asp Asn Leu Arg
 85 90 95
 Met Phe Ser Cys Asp Ser Thr Val Met Leu Trp Trp Lys Cys Glu His
 100 105 110
 His Ser Leu Tyr Thr Ala Ala Gln Tyr Arg Leu Ala Leu Lys Asp Gly
 115 120 125
 Tyr Ala Val Ala Asn Thr Asn Thr Ser Asp Val Trp Lys Lys Gly Gly
 130 135 140
 Ser Glu Glu Asn Leu Cys Ala Gln Pro Tyr His Glu Ile Tyr Thr Arg
 145 150 155 160
 Asp Gly Asn Ser Tyr Gly Arg Pro Cys Glu Phe Pro Phe Leu Ile Gly
 165 170 175
 Glu Thr⁴ Trp Tyr His Asp Cys Ile His Asp Glu Asp His Ser Gly Pro
 180 185 190

Trp Cys Ala Thr Thr Leu Ser Tyr Glu Tyr Asp Gln Lys Trp Gly Ile
195 200 205

Cys Leu Leu Pro Glu Ser Gly Cys Glu Gly Asn Trp Glu Lys Asn Glu
210 215 220

Gln Ile Gly Ser Cys Tyr Gln Phe Asn Asn Gln Glu Ile Leu Ser Trp
225 230 235 240

Lys Glu Ala Tyr Val Ser Cys Gln Asn Gln Gly Ala Asp Leu Leu Ser
245 250 255

Ile His Ser Ala Ala Glu Leu Ala Tyr Ile Thr Gly Lys Glu Asp Ile
260 265 270

Ala Arg Leu Val Trp Leu Gly Leu Asn Gln Leu Tyr Ser Ala Arg Gly
275 280 285

Trp Glu Trp Ser Asp Phe Arg Pro Leu Lys Phe Leu Asn Trp Asp Pro
290 295 300

Gly Thr Pro Val Ala Pro Val Ile Gly Gly Ser Ser Cys Ala Arg Met
305 310 315 320

Asp Thr Glu Ser Gly Leu Trp Gln Ser Val Ser Cys Glu Ser Gln Gln
325 330 335

Pro Tyr Val Cys Lys Lys Pro Leu Asn Asn Thr Leu Glu Leu Pro Asp
340 345 350

Val Trp Thr Tyr Thr Asp Thr His Cys His Val Gly Trp Leu Pro Asn
355 360 365

Asn Gly Phe Cys Tyr Leu Leu Ala Asn Glu Ser Ser Ser Trp Asp Ala
370 375 380

Ala His Leu Lys Cys Lys Ala Phe Gly Ala Asp Leu Ile Ser Met His
385 390 395 400

Ser Leu Ala Asp Val Glu Val Val Val Thr Lys Leu His Asn Gly Asp
405 410 415

Val Lys Lys Glu Ile Trp Thr Gly Leu Lys Asn Thr Asn Ser Pro Ala
420 425 430

Leu Phe Gln Trp Ser Asp Gly Thr Glu Val Thr Leu Thr Tyr Trp Asn
435 440 445

Glu Asn Glu Pro Ser Val Pro Phe Asn Lys Thr Pro Asn Cys Val Ser
450 455 460

Tyr Leu Gly Lys Leu Gly Gln Trp Lys Val Gln Ser Cys Glu Lys Lys
465 470 475 480

Leu Arg Tyr Val Cys Lys Lys Lys Gly Glu Ile Thr Lys Asp Ala Glu
485 490 495

Ser Asp Lys Leu Cys Pro Pro Asp Glu Gly Trp Lys Arg His Gly Glu
500 505 510

Thr Cys Tyr Lys Ile Tyr Glu Lys Glu Ala Pro Phe Gly Thr Asn Cys
515 520 525

Asn Leu Thr Ile Thr Ser Arg Phe Glu Gln Glu Phe Leu Asn Tyr Met
530 535 540

Met Lys Asn Tyr Asp Lys Ser Leu Arg Lys Tyr Phe Trp Thr Gly Leu
545 550 555 560

Arg Asp Pro Asp Ser Arg Gly Glu Tyr Ser Trp Ala Val Ala Gln Gly
565 570 575

Val Lys Gln Ala Val Thr Phe Ser Asn Trp Asn Phe Leu Glu Pro Ala
580 585 590

Ser Pro Gly Gly Cys Val Ala Met Ser Thr Gly Lys Thr Leu Gly Lys
595 600 605

Trp Glu Val Lys Asn Cys Arg Ser Phe Arg Ala Leu Ser Ile Cys Lys
610 615 620

Lys Val Ser Glu Pro Gln Glu Pro Glu Glu Ala Ala Pro Lys Pro Asp
625 630 635 640

Asp Pro Cys Pro Glu Gly Trp His Thr Phe Pro Ser Ser Leu Ser Cys
 645 650 655

Tyr Lys Val Phe His Ile Glu Arg Ile Val Arg Lys Arg Asn Trp Glu
 660 665 670

Glu Ala Glu Arg Phe Cys Gln Ala Leu Gly Ala His Leu Pro Ser Phe
 675 680 685

Ser Arg Arg Glu Glu Ile Lys Asp Phe Val His Leu Leu Lys Asp Gln
 690 695 700

Phe Ser Gly Gln Arg Trp Leu Trp Ile Gly Leu Asn Lys Arg Ser Pro
 705 710 715 720

Asp Leu Gln Gly Ser Trp Gln Trp Ser Asp Arg Thr Pro Val Ser Ala
 725 730 735

Val Met Met Glu Pro Glu Phe Gln Gln Asp Phe Asp Ile Arg Asp Cys
 740 745 750

Ala Ala Ile Lys Val Leu Asp Val Pro Trp Arg Arg Val Trp His Leu
 755 760 765

Tyr Glu Asp Lys Asp Tyr Ala Tyr Trp Lys Pro Phe Ala Cys Asp Ala
 770 775 780

Lys Leu Glu Trp Val Cys Gln Ile Pro Lys Gly Ser Thr Pro Gln Met
 785 790 795 800

Pro Asp Trp Tyr Asn Pro Glu Arg Thr Gly Ile His Gly Pro Pro Val
 805 810 815

Ile Ile Glu Gly Ser Glu Tyr Trp Phe Val Ala Asp Pro His Leu Asn
 820 825 830

Tyr Glu Glu Ala Val Leu Tyr Cys Ala Ser Asn His Ser Phe Leu Ala
 835 840 845

Thr Ile Thr Ser Phe Thr Gly Leu Lys Ala Ile Lys Asn Lys Leu Ala
 850 855 860

Asn Ile Ser Gly Glu Glu Gln Lys Trp Trp Val Lys Thr Ser Glu Asn
 865 870 875 880

Pro Ile Asp Arg Tyr Phe Leu Gly Ser Arg Arg Arg Leu Trp His His
 885 890 895

Phe Pro Met Thr Phe Gly Asp Glu Cys Leu His Met Ser Ala Lys Thr
 900 905 910

Trp Leu Val Asp Leu Ser Lys Arg Ala Asp Cys Asn Ala Lys Leu Pro
 915 920 925

Phe Ile Cys Glu Arg Tyr Asn Val Ser Ser Leu Glu Lys Tyr Ser Pro
 930 935 940

Asp Pro Ala Ala Lys Val Gln Cys Thr Glu Lys Trp Ile Pro Phe Gln
 945 950 955 960

Asn Lys Cys Phe Leu Lys Val Asn Ser Gly Pro Val Thr Phe Ser Gln
 965 970 975

Ala Ser Gly Ile Cys His Ser Tyr Gly Gly Thr Leu Pro Ser Val Leu
 980 985 990

Ser Arg Gly Glu Gln Asp Phe Ile Ile Ser Leu Leu Pro Glu Met Glu
 995 1000 1005

Ala Ser Leu Trp Ile Gly Leu Arg Trp Thr Ala Tyr Glu Arg Ile
 1010 1015 1020

Asn Arg Trp Thr Asp Asn Arg Glu Leu Thr Tyr Ser Asn Phe His
 1025 1030 1035

Pro Leu Leu Val Gly Arg Arg Leu Ser Ile Pro Thr Asn Phe Phe
 1040 1045 1050

Asp Asp Glu Ser His Phe His Cys Ala Leu Ile Leu Asn Leu Lys
 1055 1060 1065

Lys Ser Pro Leu Thr Gly Thr Trp Asn Phe Thr Ser Cys Ser Glu
 1070 1075 1080

| | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|
| Arg | His | Ser | Leu | Ser | Leu | Cys | Gln | Lys | Tyr | Ser | Glu | Thr | Glu | Asp |
| 1085 | | | | | | 1090 | | | | | 1095 | | | |
| Gly | Gln | Pro | Trp | Glu | Asn | Thr | Ser | Lys | Thr | Val | Lys | Tyr | Leu | Asn |
| 1100 | | | | | | 1105 | | | | | 1110 | | | |
| Asn | Leu | Tyr | Lys | Ile | Ile | Ser | Lys | Pro | Leu | Thr | Trp | His | Gly | Ala |
| 1115 | | | | | | 1120 | | | | | 1125 | | | |
| Leu | Lys | Glu | Cys | Met | Lys | Glu | Lys | Met | Arg | Leu | Val | Ser | Ile | Thr |
| 1130 | | | | | | 1135 | | | | | 1140 | | | |
| Asp | Pro | Tyr | Gln | Gln | Ala | Phe | Leu | Ala | Val | Gln | Ala | Thr | Leu | Arg |
| 1145 | | | | | | 1150 | | | | | 1155 | | | |
| Asn | Ser | Ser | Phe | Trp | Ile | Gly | Leu | Ser | Ser | Gln | Asp | Asp | Glu | Leu |
| 1160 | | | | | | 1165 | | | | | 1170 | | | |
| Asn | Phe | Gly | Trp | Ser | Asp | Gly | Lys | Arg | Leu | Gln | Phe | Ser | Asn | Trp |
| 1175 | | | | | | 1180 | | | | | 1185 | | | |
| Ala | Gly | Ser | Asn | Glu | Gln | Leu | Asp | Asp | Cys | Val | Ile | Leu | Asp | Thr |
| 1190 | | | | | | 1195 | | | | | 1200 | | | |
| Asp | Gly | Phe | Trp | Lys | Thr | Ala | Asp | Cys | Asp | Asp | Asn | Gln | Pro | Gly |
| 1205 | | | | | | 1210 | | | | | 1215 | | | |
| Ala | Ile | Cys | Tyr | Tyr | Pro | Gly | Asn | Glu | Thr | Glu | Glu | Glu | Val | Arg |
| 1220 | | | | | | 1225 | | | | | 1230 | | | |
| Ala | Leu | Asp | Thr | Ala | Lys | Cys | Pro | Ser | Pro | Val | Gln | Ser | Thr | Pro |
| 1235 | | | | | | 1240 | | | | | 1245 | | | |
| Trp | Ile | Pro | Phe | Gln | Asn | Ser | Cys | Tyr | Asn | Phe | Met | Ile | Thr | Asn |
| 1250 | | | | | | 1255 | | | | | 1260 | | | |
| Asn | Arg | His | Lys | Thr | Val | Thr | Pro | Glu | Glu | Val | Gln | Ser | Thr | Cys |
| 1265 | | | | | | 1270 | | | | | 1275 | | | |
| Glu | Lys | Leu | His | Pro | Lys | Ala | His | Ser | Leu | Ser | Ile | Arg | Asn | Glu |
| 1280 | | | | | | 1285 | | | | | 1290 | | | |

| | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|
| Glu | Glu | Asn | Thr | Phe | Val | Val | Glu | Gln | Leu | Leu | Tyr | Phe | Asn | Tyr |
| 1295 | | | | | | 1300 | | | | | 1305 | | | |
| Ile | Ala | Ser | Trp | Val | Met | Leu | Gly | Ile | Thr | Tyr | Glu | Asn | Asn | Ser |
| 1310 | | | | | | 1315 | | | | | 1320 | | | |
| Leu | Met | Trp | Phe | Asp | Lys | Thr | Ala | Leu | Ser | Tyr | Thr | His | Trp | Arg |
| 1325 | | | | | | 1330 | | | | | 1335 | | | |
| Thr | Gly | Arg | Pro | Thr | Val | Lys | Asn | Gly | Lys | Phe | Leu | Ala | Gly | Leu |
| 1340 | | | | | | 1345 | | | | | 1350 | | | |
| Ser | Thr | Asp | Gly | Phe | Trp | Asp | Ile | Gln | Ser | Phe | Asn | Val | Ile | Glu |
| 1355 | | | | | | 1360 | | | | | 1365 | | | |
| Glu | Thr | Leu | His | Phe | Tyr | Gln | His | Ser | Ile | Ser | Ala | Cys | Lys | Ile |
| 1370 | | | | | | 1375 | | | | | 1380 | | | |
| Glu | Met | Val | Asp | Tyr | Glu | Asp | Lys | His | Asn | Gly | Thr | Leu | Pro | Gln |
| 1385 | | | | | | 1390 | | | | | 1395 | | | |
| Phe | Ile | Pro | Tyr | Lys | Asp | Gly | Val | Tyr | Ser | Val | Ile | Gln | Lys | Lys |
| 1400 | | | | | | 1405 | | | | | 1410 | | | |
| Val | Thr | Trp | Tyr | Glu | Ala | Leu | Asn | Ala | Cys | Ser | Gln | Ser | Gly | Gly |
| 1415 | | | | | | 1420 | | | | | 1425 | | | |
| Glu | Leu | Ala | Ser | Val | His | Asn | Pro | Asn | Gly | Lys | Leu | Phe | Leu | Glu |
| 1430 | | | | | | 1435 | | | | | 1440 | | | |
| Asp | Ile | Val | Asn | Arg | Asp | Gly | Phe | Pro | Leu | Trp | Val | Gly | Leu | Ser |
| 1445 | | | | | | 1450 | | | | | 1455 | | | |
| Ser | His | Asp | Gly | Ser | Glu | Ser | Ser | Phe | Glu | Trp | Ser | Asp | Gly | Arg |
| 1460 | | | | | | 1465 | | | | | 1470 | | | |
| Ala | Phe | Asp | Tyr | Val | Pro | Trp | Gln | Ser | Leu | Gln | Ser | Pro | Gly | Asp |
| 1475 | | | | | | 1480 | | | | | 1485 | | | |
| Cys | Val | Val | Leu | Tyr | Pro | Lys | Gly | Ile | Trp | Arg | Arg | Glu | Lys | Cys |
| 1490 | | | | | | 1495 | | | | | 1500 | | | |

| | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|
| Leu | Ser | Val | Lys | Asp | Gly | Ala | Ile | Cys | Tyr | Lys | Pro | Thr | Lys | Asp |
| 1505 | | | | | | 1510 | | | | | 1515 | | | |
| Lys | Lys | Leu | Ile | Phe | His | Val | Lys | Ser | Ser | Lys | Cys | Pro | Val | Ala |
| 1520 | | | | | | 1525 | | | | | 1530 | | | |
| Lys | Arg | Asp | Gly | Pro | Gln | Trp | Val | Gln | Tyr | Gly | Gly | His | Cys | Tyr |
| 1535 | | | | | | 1540 | | | | | 1545 | | | |
| Ala | Ser | Asp | Gln | Val | Leu | His | Ser | Phe | Ser | Glu | Ala | Lys | Gln | Val |
| 1550 | | | | | | 1555 | | | | | 1560 | | | |
| Cys | Gln | Glu | Leu | Asp | His | Ser | Ala | Thr | Val | Val | Thr | Ile | Ala | Asp |
| 1565 | | | | | | 1570 | | | | | 1575 | | | |
| Glu | Asn | Glu | Asn | Lys | Phe | Val | Ser | Arg | Leu | Met | Arg | Glu | Asn | Tyr |
| 1580 | | | | | | 1585 | | | | | 1590 | | | |
| Asn | Ile | Thr | Met | Arg | Val | Trp | Leu | Gly | Leu | Ser | Gln | His | Ser | Leu |
| 1595 | | | | | | 1600 | | | | | 1605 | | | |
| Asp | Gln | Ser | Trp | Ser | Trp | Leu | Asp | Gly | Leu | Asp | Val | Thr | Phe | Val |
| 1610 | | | | | | 1615 | | | | | 1620 | | | |
| Lys | Trp | Glu | Asn | Lys | Thr | Lys | Asp | Gly | Asp | Gly | Lys | Cys | Ser | Ile |
| 1625 | | | | | | 1630 | | | | | 1635 | | | |
| Leu | Ile | Ala | Ser | Asn | Glu | Thr | Trp | Arg | Lys | Val | His | Cys | Ser | Arg |
| 1640 | | | | | | 1645 | | | | | 1650 | | | |
| Gly | Tyr | Ala | Arg | Ala | Val | Cys | Lys | Ile | Pro | Leu | Ser | Pro | Asp | Tyr |
| 1655 | | | | | | 1660 | | | | | 1665 | | | |
| Thr | Gly | Ile | Ala | Ile | Leu | Phe | Ala | Val | Leu | Cys | Leu | Leu | Gly | Leu |
| 1670 | | | | | | 1675 | | | | | 1680 | | | |
| Ile | Ser | Leu | Ala | Ile | Trp | Phe | Leu | Leu | Gln | Arg | Ser | His | Ile | Arg |
| 1685 | | | | | | 1690 | | | | | 1695 | | | |
| Trp | Thr | Gly | Phe | Ser | Ser | Val | Arg | Tyr | Glu | His | Gly | Thr | Asn | Glu |
| 1700 | | | | | | 1705 | | | | | 1710 | | | |

Asp Glu Val Met Leu Pro Ser Phe His Asp
 1715 1720

<210> 4
 <211> 1462
 <212> PRT
 <213> Bos Taurus

<220>
 <223> PLA2 receptor

<400> 4
 Met Pro Leu Leu Ser Leu Ser Leu Leu Leu Leu Leu Leu Gln Val Pro
 1 5 10 15

Ala Gly Ser Ala Glu Thr Ala Ala Trp Ala Val Thr Pro Glu Arg Leu
 20 25 30

Arg Glu Trp Gln Asp Lys Gly Ile Phe Ile Ile Gln Ser Glu Asn Leu
 35 40 45

Glu Lys Cys Ile Gln Ala Ser Lys Ser Thr Leu Thr Leu Glu Asn Cys
 50 55 60

Lys Pro Pro Asn Lys Tyr Met Leu Trp Lys Trp Val Ser Asn His Arg
 65 70 75 80

Leu Phe Asn Ile Gly Gly Ser Gly Cys Leu Gly Leu Asn Val Ser Ser
 85 90 95

Pro Glu Gln Pro Leu Ser Ile Tyr Glu Cys Asp Ser Thr His Val Ser
 100 105 110

Leu Lys Trp His Cys Asn Lys Lys Thr Ile Thr Gly Pro Leu Gln Tyr
 115 120 125

Leu Val Gln Val Lys Gln Asp Asn Thr Leu Val Ala Ser Arg Lys Tyr
 130 135 140

Leu His Lys Trp Val Ser Tyr Met Ser Gly Gly Gly Gly Ile Cys Asp
 145 150 155 160

Tyr Leu His Lys Asp Leu Tyr Thr Ile Lys Gly Asn Ala His Gly Thr
 165 170 175

Pro Cys Met Phe Pro Phe Gln Tyr Asn Gln Gln Trp His His Glu Cys
 180 185 190

Thr Arg Glu Gly Arg Glu Asp Asn Leu Leu Trp Cys Ala Thr Thr Ser
 195 200 205

Arg Tyr Glu Arg Asp Glu Lys Trp Gly Phe Cys Pro Asp Pro Thr Ser
 210 215 220

Thr Glu Val Gly Cys Asp Ala Val Trp Glu Lys Asp Leu His Ser Arg
 225 230 235 240

Ile Cys Tyr Gln Phe Asn Leu Leu Ser Ser Leu Ser Trp Ser Glu Ala
 245 250 255

His Ser Ser Cys Gln Met Gln Gly Ala Ala Leu Leu Ser Ile Ala Asp
 260 265 270

Glu Thr Glu Glu Asn Phe Val Arg Lys His Leu Gly Ser Glu Ala Val
 275 280 285

Glu Val Trp Met Gly Leu Asn Gln Leu Asp Glu Asp Ala Gly Trp Gln
 290 295 300

Trp Ser Asp Arg Thr Pro Leu Asn Tyr Leu Asn Trp Lys Pro Glu Ile
 305 310 315 320

Asn Phe Glu Pro Phe Val Glu Tyr His Cys Gly Thr Phe Asn Ala Phe
 325 330 335

Met Pro Lys Ala Trp Lys Ser Arg Asp Cys Glu Ser Thr Leu Pro Tyr
 340 345 350

Val Cys Lys Lys Tyr Leu Asn Pro Thr Asp His Gly Val Val Glu Lys
 355 360 365

Asp Ala Trp Lys Tyr Tyr Ala Thr His Cys Glu Pro Gly Trp Asn Pro
 370 375 380

His Asn Arg Asn Cys Tyr Lys Leu Gln Lys Glu Lys Lys Thr Trp Asn
 385 390 395 400

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Ala | Leu | Gln | Ser | Cys | Gln | Ser | Asn | Asn | Ser | Val | Leu | Thr | Asp | Ile | 405 | 410 | 415 |
| Thr | Ser | Leu | Ala | Glu | Val | Glu | Phe | Leu | Val | Thr | Leu | Leu | Gly | Asp | Glu | 420 | 425 | 430 |
| Asn | Ala | Ser | Glu | Thr | Trp | Ile | Gly | Leu | Ser | Ser | His | Lys | Ile | Pro | Val | 435 | 440 | 445 |
| Ser | Phe | Glu | Trp | Ser | Asn | Gly | Ser | Ser | Val | Thr | Phe | Thr | Asn | Trp | His | 450 | 455 | 460 |
| Thr | Leu | Glu | Pro | His | Ile | Phe | Pro | Asn | Arg | Ser | Gln | Leu | Cys | Val | Ser | 465 | 470 | 475 |
| Ala | Glu | Gln | Ser | Glu | Gly | His | Trp | Lys | Val | Lys | Asn | Cys | Glu | Glu | Thr | 485 | 490 | 495 |
| Leu | Phe | Tyr | Leu | Cys | Lys | Lys | Thr | His | Leu | Val | Leu | Ser | Asp | Thr | Glu | 500 | 505 | 510 |
| Ser | Gly | Cys | Gln | Lys | Gly | Trp | Glu | Arg | His | Gly | Lys | Phe | Cys | Tyr | Lys | 515 | 520 | 525 |
| Ile | Asp | Thr | Val | Leu | Arg | Ser | Phe | Asp | His | Ala | Ser | Ser | Gly | Tyr | Tyr | 530 | 535 | 540 |
| Cys | Pro | Pro | Ala | Leu | Ile | Thr | Ile | Thr | Ser | Arg | Phe | Glu | Gln | Ala | Phe | 545 | 550 | 555 |
| Ile | Thr | Ser | Leu | Ile | Ser | Ser | Val | Val | Lys | Thr | Lys | Asp | Thr | Tyr | Phe | 565 | 570 | 575 |
| Trp | Ile | Ala | Leu | Gln | Asp | Gln | Asn | Asn | Thr | Gly | Glu | Tyr | Thr | Trp | Lys | 580 | 585 | 590 |
| Thr | Ala | Gly | Gln | Gln | Leu | Glu | Pro | Val | Lys | Tyr | Thr | His | Trp | Asn | Thr | 595 | 600 | 605 |
| Arg | Gln | Pro | Arg | Tyr | Ser | Gly | Gly | Cys | Val | Val | Met | Arg | Gly | Arg | Ser | 610 | 615 | 620 |

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Pro | Gly | Arg | Trp | Glu | Val | Arg | Asp | Cys | Arg | His | Phe | Lys | Ala | Met | 625 | 630 | 635 | 640 |
| Ser | Leu | Cys | Lys | Gln | Pro | Val | Glu | Asn | Arg | Glu | Lys | Thr | Lys | Gln | Glu | 645 | 650 | 655 | |
| Glu | Gly | Trp | Pro | Phe | His | Pro | Cys | Tyr | Leu | Asp | Trp | Glu | Ser | Glu | Pro | 660 | 665 | 670 | |
| Gly | Leu | Ala | Ser | Cys | Phe | Lys | Val | Phe | His | Ser | Glu | Lys | Val | Leu | Met | 675 | 680 | 685 | |
| Lys | Arg | Thr | Trp | Arg | Gln | Ala | Glu | Glu | Phe | Cys | Glu | Glu | Phe | Gly | Ala | 690 | 695 | 700 | |
| His | Leu | Ala | Ser | Phe | Ala | His | Ile | Glu | Glu | Glu | Asn | Phe | Val | Asn | Glu | 705 | 710 | 715 | 720 |
| Leu | Leu | His | Ser | Lys | Phe | Asn | Arg | Thr | Glu | Glu | Arg | Gln | Phe | Trp | Ile | 725 | 730 | 735 | |
| Gly | Phe | Asn | Lys | Arg | Asn | Pro | Leu | Asn | Ala | Gly | Ser | Trp | Glu | Trp | Ser | 740 | 745 | 750 | |
| Asp | Gly | Thr | Pro | Val | Val | Ser | Ser | Phe | Leu | Asp | Asn | Ser | Tyr | Phe | Gly | 755 | 760 | 765 | |
| Glu | Asp | Ala | Arg | Asn | Cys | Ala | Val | Tyr | Lys | Ala | Asn | Lys | Thr | Leu | Leu | 770 | 775 | 780 | |
| Pro | Ser | Tyr | Cys | Gly | Ser | Lys | Arg | Glu | Trp | Ile | Cys | Lys | Ile | Pro | Arg | 785 | 790 | 795 | 800 |
| Asp | Val | Arg | Pro | Lys | Val | Pro | Pro | Trp | Tyr | Gln | Tyr | Asp | Ala | Pro | Trp | 805 | 810 | 815 | |
| Leu | Phe | Tyr | Gln | Asp | Ala | Glu | Tyr | Leu | Phe | His | Ile | Ser | Ala | Ser | Glu | 820 | 825 | 830 | |
| Trp | Ser | Ser | Phe | Glu | Phe | Val | Cys | Gly | Trp | Leu | Arg | Ser | Asp | Ile | Leu | 835 | 840 | 845 | |

Thr Ile His Ser Ala His Glu Gln Glu Phe Ile His Ser Lys Ile Arg
850 855 860

Ala Leu Ser Lys Tyr Gly Val Asn Trp Trp Ile Gly Leu Arg Glu Glu
865 870 875 880

Arg Ala Ser Asp Glu Phe Arg Trp Arg Asp Gly Ser Pro Val Ile Tyr
885 890 895

Gln Asn Trp Asp Lys Gly Lys Glu Arg Ser Met Gly Leu Asn Glu Ser
900 905 910

Gln Arg Cys Gly Phe Ile Ser Ser Ile Thr Gly Leu Trp Ala Ser Glu
915 920 925

Glu Cys Ser Ile Ser Met Pro Ser Ile Cys Lys Arg Lys Lys Val Trp
930 935 940

Val Ile Glu Lys Lys Lys Asp Ile Pro Lys Gln His Gly Thr Cys Pro
945 950 955 960

Lys Gly Trp Leu Tyr Phe Asp Tyr Lys Cys Leu Leu Leu Lys Ile Pro
965 970 975

Glu Gly Pro Ser Asp Trp Lys Asn Trp Thr Ser Ala Gln Asp Phe Cys
980 985 990

Val Glu Glu Gly Gly Thr Leu Val Ala Ile Glu Asn Glu Val Glu Gln
995 1000 1005

Ala Phe Ile Thr Met Asn Leu Phe Gly His Thr Thr Asn Val Trp
1010 1015 1020

Ile Gly Leu Gln Asp Asp Asp Tyr Glu Lys Trp Leu Asn Gly Arg
1025 1030 1035

Pro Val Ser Tyr Ser Asn Trp Ser Pro Phe Asp Thr Lys Asn Ile
1040 1045 1050

Pro Asn His Asn Thr Thr Glu Val Gln Lys Arg Ile Pro Leu Cys
1055 1060 1065

| | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|
| Gly | Leu | Leu | Ser | Asn | Asn | Pro | Asn | Phe | His | Phe | Thr | Gly | Lys | Trp |
| 1070 | | | | | | 1075 | | | | | 1080 | | | |
| Tyr | Phe | Asp | Cys | Arg | Glu | Gly | Tyr | Gly | Phe | Val | Cys | Glu | Lys | Met |
| 1085 | | | | | | 1090 | | | | | 1095 | | | |
| Gln | Asp | Ala | Ser | Gly | His | Ser | Ile | Asn | Thr | Ser | Asp | Met | Tyr | Pro |
| 1100 | | | | | | 1105 | | | | | 1110 | | | |
| Ile | Pro | Asn | Thr | Leu | Glu | Tyr | Gly | Asn | Arg | Thr | Tyr | Lys | Ile | Ile |
| 1115 | | | | | | 1120 | | | | | 1125 | | | |
| Asn | Ala | Asn | Met | Thr | Trp | Tyr | Thr | Ala | Leu | Lys | Thr | Cys | Leu | Met |
| 1130 | | | | | | 1135 | | | | | 1140 | | | |
| His | Gly | Ala | Glu | Leu | Ala | Ser | Ile | Thr | Asp | Gln | Tyr | His | Gln | Ser |
| 1145 | | | | | | 1150 | | | | | 1155 | | | |
| Phe | Leu | Thr | Val | Ile | Leu | Asn | Arg | Val | Gly | Tyr | Ala | His | Trp | Ile |
| 1160 | | | | | | 1165 | | | | | 1170 | | | |
| Gly | Leu | Phe | Thr | Glu | Asp | Asn | Gly | Leu | Ser | Phe | Asp | Trp | Ser | Asp |
| 1175 | | | | | | 1180 | | | | | 1185 | | | |
| Gly | Thr | Lys | Ser | Ser | Phe | Thr | Phe | Trp | Lys | Asp | Asp | Glu | Ser | Ser |
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| Phe | Leu | Gly | Asp | Cys | Val | Phe | Ala | Asp | Thr | Ser | Gly | Arg | Trp | Ser |
| 1205 | | | | | | 1210 | | | | | 1215 | | | |
| Ser | Thr | Ala | Cys | Glu | Ser | Tyr | Leu | Gln | Gly | Ala | Ile | Cys | Gln | Val |
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| Pro | Thr | Glu | Thr | Arg | Leu | Ser | Gly | Arg | Leu | Glu | Leu | Cys | Ser | Glu |
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| Thr | Ser | Ile | Pro | Trp | Ile | Lys | Phe | Lys | Ser | Asn | Cys | Tyr | Ser | Phe |
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| Ser | Thr | Val | Leu | Glu | Ser | Thr | Ser | Phe | Glu | Ala | Ala | His | Glu | Phe |
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Cys Lys Lys Lys Gly Ser Asn Leu Leu Thr Ile Lys Asp Glu Ala
 1280 1285 1290

Glu Asn Ser Phe Leu Leu Glu Glu Leu Leu Ala Phe Arg Ser Ser
 1295 1300 1305

Val Gln Met Ile Trp Leu Asn Ala Gln Phe Asp Gly Asp Asn Glu
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Thr Ile Lys Trp Phe Asp Gly Thr Pro Thr Asp Gln Ser Asn Trp
 1325 1330 1335

Gly Ile Arg Lys Pro Glu Val Tyr His Phe Lys Pro His Leu Cys
 1340 1345 1350

Val Ala Leu Arg Ile Pro Glu Gly Val Trp Gln Leu Ser Ser Cys
 1355 1360 1365

Gln Asp Lys Lys Gly Phe Ile Cys Lys Met Glu Ala Asp Ile His
 1370 1375 1380

Thr Val Lys Lys His Pro Gly Lys Gly Pro Ser His Ser Val Ile
 1385 1390 1395

Pro Leu Thr Val Ala Leu Thr Leu Leu Val Ile Leu Ala Ile Ser
 1400 1405 1410

Thr Leu Ser Phe Cys Met Tyr Lys His Ser His Ile Ile Phe Gly
 1415 1420 1425

Arg Leu Ala Gln Phe Arg Asn Pro Tyr Tyr Pro Ser Ala Asn Phe
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Ser Thr Val His Leu Glu Glu Asn Ile Leu Ile Ser Asp Leu Glu
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Lys Asn Asp Gln
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Val Leu Leu Leu Asp Thr Arg Gln Phe Leu Ile Tyr Asn Glu Asp His
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Lys Arg Cys Val Asp Ala Val Ser Pro Ser Ala Val Gln Thr Ala Ala
35 40 45

Cys Asn Gln Asp Ala Glu Ser Gln Lys Phe Arg Trp Val Ser Glu Ser
50 55 60

Gln Ile Met Ser Val Ala Phe Lys Leu Cys Leu Gly Val Pro Ser Lys
65 70 75 80

Thr Asp Trp Val Ala Ile Thr Leu Tyr Ala Cys Asp Ser Lys Ser Glu
85 90 95

Phe Gln Lys Trp Glu Cys Lys Asn Asp Thr Leu Leu Gly Ile Lys Gly
100 105 110

Glu Asp Leu Phe Phe Asn Tyr Gly Asn Arg Gln Glu Lys Asn Ile Met
115 120 125

Leu Tyr Lys Gly Ser Gly Leu Trp Ser Arg Trp Lys Ile Tyr Gly Thr
130 135 140

Thr Asp Asn Leu Cys Ser Arg Gly Tyr Glu Ala Met Tyr Thr Leu Leu
145 150 155 160

Gly Asn Ala Asn Gly Ala Thr Cys Ala Phe Pro Phe Lys Phe Glu Asn
165 170 175

Lys Trp Tyr Ala Asp Cys Thr Ser Ala Gly Arg Ser Asp Gly Trp Leu
180 185 190

Trp Cys Gly Thr Thr Thr Asp Tyr Asp Thr Asp Lys Leu Phe Gly Tyr
195 200 205

Cys Pro Leu Lys Phe Glu Gly Ser Glu Ser Leu Trp Asn Lys Asp Pro
 210 215 220

Leu Thr Ser Val Ser Tyr Gln Ile Asn Ser Lys Ser Ala Leu Thr Trp
 225 230 235 240

His Gln Ala Arg Lys Ser Cys Gln Gln Gln Asn Ala Glu Leu Leu Ser
 245 250 255

Ile Thr Glu Ile His Glu Gln Thr Tyr Leu Thr Gly Leu Thr Ser Ser
 260 265 270

Leu Thr Ser Gly Leu Trp Ile Gly Leu Asn Ser Leu Ser Phe Asn Ser
 275 280 285

Gly Trp Gln Trp Ser Asp Arg Ser Pro Phe Arg Tyr Leu Asn Trp Leu
 290 295 300

Pro Gly Ser Pro Ser Ala Glu Pro Gly Lys Ser Cys Val Ser Leu Asn
 305 310 315 320

Pro Gly Lys Asn Ala Lys Trp Glu Asn Leu Glu Cys Val Gln Lys Leu
 325 330 335

Gly Tyr Ile Cys Lys Lys Gly Asn Thr Thr Leu Asn Ser Phe Val Ile
 340 345 350

Pro Ser Glu Ser Asp Val Pro Thr His Cys Pro Ser Gln Trp Trp Pro
 355 360 365

Tyr Ala Gly His Cys Tyr Lys Ile His Arg Asp Glu Lys Lys Ile Gln
 370 375 380

Arg Asp Ala Leu Thr Thr Cys Arg Lys Glu Gly Gly Asp Leu Thr Ser
 385 390 395 400

Ile His Thr Ile Glu Glu Leu Asp Phe Ile Ile Ser Gln Leu Gly Tyr
 405 410 415

Glu Pro Asn Asp Glu Leu Trp Ile Gly Leu Asn Asp Ile Lys Ile Gln
 420 425 430

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Tyr | Phe | Glu | Trp | Ser | Asp | Gly | Thr | Pro | Val | Thr | Phe | Thr | Lys | Trp |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Leu | Arg | Gly | Glu | Pro | Ser | His | Glu | Asn | Asn | Arg | Gln | Glu | Asp | Cys | Val |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Val | Met | Lys | Gly | Lys | Asp | Gly | Tyr | Trp | Ala | Asp | Arg | Gly | Cys | Glu | Trp |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Pro | Leu | Gly | Tyr | Ile | Cys | Lys | Met | Lys | Ser | Arg | Ser | Gln | Gly | Pro | Glu |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Ile | Val | Glu | Val | Glu | Lys | Gly | Cys | Arg | Lys | Gly | Trp | Lys | Lys | His | His |
| | | 500 | | | | | | 505 | | | | | 510 | | |
| Phe | Tyr | Cys | Tyr | Met | Ile | Gly | His | Thr | Leu | Ser | Thr | Phe | Ala | Glu | Ala |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Asn | Gln | Thr | Cys | Asn | Asn | Glu | Asn | Ala | Tyr | Leu | Thr | Thr | Ile | Glu | Asp |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Arg | Tyr | Glu | Gln | Ala | Phe | Leu | Thr | Ser | Phe | Val | Gly | Leu | Arg | Pro | Glu |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Lys | Tyr | Phe | Trp | Thr | Gly | Leu | Ser | Asp | Ile | Gln | Thr | Lys | Gly | Thr | Phe |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Gln | Trp | Thr | Ile | Glu | Glu | Glu | Val | Arg | Phe | Thr | His | Trp | Asn | Ser | Asp |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Met | Pro | Gly | Arg | Lys | Pro | Gly | Cys | Val | Ala | Met | Arg | Thr | Gly | Ile | Ala |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Gly | Gly | Leu | Trp | Asp | Val | Leu | Lys | Cys | Asp | Glu | Lys | Ala | Lys | Phe | Val |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Cys | Lys | His | Trp | Ala | Glu | Gly | Val | Thr | His | Pro | Pro | Lys | Pro | Thr | Thr |
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| Thr | Pro | Glu | Pro | Lys | Cys | Pro | Glu | Asp | Trp | Gly | Ala | Ser | Ser | Arg | Thr |
| | | | | 645 | | | | | 650 | | | | | 655 | |

Ser Leu Cys Phe Lys Leu Tyr Ala Lys Gly Lys His Glu Lys Lys Thr
 660 665 670

Trp Phe Glu Ser Arg Asp Phe Cys Arg Ala Leu Gly Gly Asp Leu Ala
 675 680 685

Ser Ile Asn Asn Lys Glu Glu Gln Gln Thr Ile Trp Arg Leu Ile Thr
 690 695 700

Ala Ser Gly Ser Tyr His Lys Leu Phe Trp Leu Gly Leu Thr Tyr Gly
 705 710 715 720

Ser Pro Ser Glu Gly Phe Thr Trp Ser Asp Gly Ser Pro Val Ser Tyr
 725 730 735

Glu Asn Trp Ala Tyr Gly Glu Pro Asn Asn Tyr Gln Asn Val Glu Tyr
 740 745 750

Cys Gly Glu Leu Lys Gly Asp Pro Thr Met Ser Trp Asn Asp Ile Asn
 755 760 765

Cys Glu His Leu Asn Asn Trp Ile Cys Gln Ile Gln Lys Gly Gln Thr
 770 775 780

Pro Lys Pro Glu Pro Thr Pro Ala Pro Gln Asp Asn Pro Pro Val Thr
 785 790 795 800

Glu Asp Gly Trp Val Ile Tyr Lys Asp Tyr Gln Tyr Tyr Phe Ser Lys
 805 810 815

Glu Lys Glu Thr Met Asp Asn Ala Arg Ala Phe Cys Lys Arg Asn Phe
 820 825 830

Gly Asp Leu Val Ser Ile Gln Ser Glu Ser Glu Lys Lys Phe Leu Trp
 835 840 845

Lys Tyr Val Asn Arg Asn Asp Ala Gln Ser Ala Tyr Phe Ile Gly Leu
 850 855 860

Leu Ile Ser Leu Asp Lys Lys Phe Ala Trp Met Asp Gly Ser Lys Val
 865 870 875 880

| | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|
| Phe | Val | Lys | Tyr | Gly | Lys | Ser | Ser | Tyr | Ser | Leu | Met | Arg | Gln | Lys |
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| Phe | Gln | Trp | His | Glu | Ala | Glu | Thr | Tyr | Cys | Lys | Leu | His | Asn | Ser |
| 1115 | | | | | | 1120 | | | | | 1125 | | | |
| Leu | Ile | Ala | Ser | Ile | Leu | Asp | Pro | Tyr | Ser | Asn | Ala | Phe | Ala | Trp |
| 1130 | | | | | | 1135 | | | | | 1140 | | | |
| Leu | Gln | Met | Glu | Thr | Ser | Asn | Glu | Arg | Val | Trp | Ile | Ala | Leu | Asn |
| 1145 | | | | | | 1150 | | | | | 1155 | | | |
| Ser | Asn | Leu | Thr | Asp | Asn | Gln | Tyr | Thr | Trp | Thr | Asp | Lys | Trp | Arg |
| 1160 | | | | | | 1165 | | | | | 1170 | | | |
| Val | Arg | Tyr | Thr | Asn | Trp | Ala | Ala | Asp | Glu | Pro | Lys | Leu | Lys | Ser |
| 1175 | | | | | | 1180 | | | | | 1185 | | | |
| Ala | Cys | Val | Tyr | Leu | Asp | Leu | Asp | Gly | Tyr | Trp | Lys | Thr | Ala | His |
| 1190 | | | | | | 1195 | | | | | 1200 | | | |
| Cys | Asn | Glu | Ser | Phe | Tyr | Phe | Leu | Cys | Lys | Arg | Ser | Asp | Glu | Ile |
| 1205 | | | | | | 1210 | | | | | 1215 | | | |
| Pro | Ala | Thr | Glu | Pro | Pro | Gln | Leu | Pro | Gly | Arg | Cys | Pro | Glu | Ser |
| 1220 | | | | | | 1225 | | | | | 1230 | | | |
| Asp | His | Thr | Ala | Trp | Glu | Ile | Pro | Phe | His | Gly | His | Cys | Tyr | Tyr |
| 1235 | | | | | | 1240 | | | | | 1245 | | | |
| Ile | Glu | Ser | Ser | Tyr | Thr | Arg | Asn | Trp | Gly | Gln | Ala | Ser | Leu | Glu |
| 1250 | | | | | | 1255 | | | | | 1260 | | | |
| Cys | Leu | Arg | Met | Gly | Ser | Ser | Leu | Val | Ser | Ile | Glu | Ser | Ala | Ala |
| 1265 | | | | | | 1270 | | | | | 1275 | | | |
| Glu | Ser | Ser | Phe | Leu | Ser | Tyr | Arg | Val | Glu | Pro | Leu | Lys | Ser | Lys |
| 1280 | | | | | | 1285 | | | | | 1290 | | | |
| Thr | Asn | Phe | Trp | Ile | Gly | Leu | Phe | Arg | Asn | Val | Glu | Gly | Thr | Trp |
| 1295 | | | | | | 1300 | | | | | 1305 | | | |

Leu Trp Ile Asn Asn Ser Pro Val Ser Phe Val Asn Trp Asn Thr
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Gly Asp Pro Ser Gly Glu Arg Asn Asp Cys Val Ala Leu His Ala
1325 1330 1335

Ser Ser Gly Phe Trp Ser Asn Ile His Cys Ser Ser Tyr Lys Gly
1340 1345 1350

Tyr Ile Cys Lys Arg Pro Lys Ile Ile Asp Ala Lys Pro Thr His
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Glu Leu Leu Thr Thr Lys Ala Asp Thr Arg Lys Met Asp Pro Ser
1370 1375 1380

Lys Pro Ser Ser Asn Val Ala Gly Val Val Ile Ile Val Ile Leu
1385 1390 1395

Leu Ile Leu Thr Gly Ala Gly Leu Ala Ala Tyr Phe Phe Tyr Lys
1400 1405 1410

Lys Arg Arg Val His Leu Pro Gln Glu Gly Ala Phe Glu Asn Thr
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1 5 10 15

Gly Lys Cys

COPY



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|---------------------------------|-------------|---------------------------------------------------|---------------------|
| 09586704 | 6/5/2000 | STEINMAN ET AL. | RUJ-001CNRCE2 |

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ONE POST OFFICE SQUARE
BOSTON, MA 02109

EXAMINER

Ron Schwadron, Ph.D.

| ART UNIT | PAPER |
|----------|--------|
| 1644 | 200810 |

DATE MAILED:



Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825 for the reason(s) set forth below or on the attached Notice To Comply With Requirements For Patent Applications Containing Nucleotide Sequence And/Or Amino Acid Sequence Disclosures.

SEQ IDs 7-12 are not homo sapien sequences or variants of homo sapien sequences, but represent artificial sequences which are consensus sequences between different proteins.

Applicant is given ONE MONTH, or THIRTY DAYS, whichever is longer, from the mailing date of this letter within which to comply with the sequence rules, 37 CFR 1.821 - 1.825. Failure to comply with these requirements will result in ABANDONMENT of the application under 37 CFR 1.821(g). Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a). In no case may an applicant extend the period for reply beyond the SIX MONTH statutory period. Direct the reply to the undersigned. Applicant is requested to return a copy of the attached Notice to Comply with the reply.

/Ron Schwadron, Ph.D./
Primary Examiner, Art Unit 1644